We claim:

1. A protocol stack comprising:

an internet protocol layer for adding internet protocol overhead information to data packets to produce internet protocol data packets;

a multiplexing layer for adding multiplexer overhead information to the internet protocol data packets and multiplexing the internet protocol data packets and multiplexer overhead information to produce a multiplexed data packet, wherein the multiplexer overhead information are interposed between the internet protocol data packets and are indicative of lengths associated with the internet protocol data packets; and

a multi protocol label switching layer for adding multi protocol label switching overhead information to the multiplexed the multiplexed data packet to produce a multi protocol label switching data packet.

2. The protocol stack of claim 1 further comprising:

a point to point protocol layer and a high level data link control protocol layer for adding point to point overhead information and high level data link control overhead information to the multi protocol label switching data packet.

3. A method for multiplexing streams of internet protocol (IP) data packets comprising the steps of:

multiplexing within a frame a first IP overhead information and a first IP data packet, the first IP overhead information indicative of a length associated with the first IP data packet;

determining whether a second IP data packet can be multiplexed into the same frame with the multiplexed first IP overhead information and the first IP data packet; and

multiplexing within the frame the second IP overhead information and the second IP data packet if the second IP data packet can be multiplexed into the frame.

4. The method of claim 3, wherein the second IP overhead information and the second IP data packet can be multiplexed within the frame if the multiplexed first IP overhead information and the first IP data packet are not greater than a target size.

5. The method of claim 4, wherein the target size is 300 bytes.

6. The method of claim 4, wherein the target size is based on desired jitter performance.

7. The method of claim 3, wherein the second IP overhead information and the second IP data packet can be multiplexed within the frame if the first IP data packet was not an oversized IP data packet.

8. The method of claim 7, wherein the first IP overhead information is all zeroes if the first IP data packet is an oversized data packet.

9. The method of claim 3, wherein the second IP overhead information and the second IP data packet can be multiplexed within the frame if a timer has not expired.

10. The method of claim 9, wherein the time is set to expire based on a desired delay sensitivity.

11. The method of claim 3, wherein the second IP overhead information and the second IP data packet can be multiplexed within the frame if a timer has not expired and if the first IP data packet was not an oversized IP data packet or the multiplexed first IP overhead information and the first IP data packet are not greater than a target size.

12. The method of claim 3, wherein the first IP overhead information is one byte.

13. The method of claim 3, wherein the first IP overhead information utilizes an octet or word format to indicate the length associated with the first IP data packet.

14. The method of claim 3, wherein the first IP data packet and the second IP data packet belong to different IP data streams.

15. The method of claim 3 comprising the additional step of:

adding multi protocol label switching overhead information to IP overhead information and IP data packets multiplexed within the frame when no more IP data packets can be multiplexed within the frame.

16. The method of claim 3 comprising the additional step of:

demultiplexing the first IP data packet from the frame using the first IP overhead information.